I claim:

1. A current interrupter for an electrical circuit, the interrupter adapted to open when a threshold current passes therethrough, the interrupter comprising a flowable conductor adapted for connection to the circuit, the conductor having a cross-sectional area, wherein the conductor cross-sectional area is sized relative to the threshold current such that a sufficient magnetic pressure is generated in the conductor to thereby force the conductor to flow, said flow being sufficient to thereby open the circuit.

2. The current interrupter of claim 1 wherein the conductor is solid during a normal operating temperature of the electrical circuit and flowable at a temperature above said normal operating temperature.

3. The current interrupter of claim 1 wherein said flow flows substantially independent of any gravity effect on the flow.

4. The current interrupter of claim 1 wherein the conductor is a eutectic material.

5. The current interrupter of claim 1 wherein the current interrupter additionally comprises at least one reservoir for receiving said flow.

6. The current interrupter of claim 5 wherein the reservoir is configured such that the conductor cannot fully flow into the reservoir under the action of gravity alone.

7. The current interrupter of claim 5 wherein the conductor has a core and an axial direction, and wherein the reservoir communicates directly with the condcutor core and is adapted to permit conductor material to flow axially from a core region into the reservoir.

8. A current interrupter for an electrical circuit, the interrupter adapted to open when a threshold current passes therethrough, the interrupter comprising: pressure

means for forcing a flowable conductor connected to the circuit to flow sufficiently to thereby open the circuit, said pressure means comprising a conductor and a threshold current, the conductor sized and composed of a material such that the threshold current passing through the conductor generates a temperature and a forcing pressure sufficient to force said flow, said forcing pressure having a greater motive effect on said flow than a gravitational effect on said flow.

9. The current interrupter of claim 8 wherein the current interrupter has said pressure means for opening the circuit and is free from any other means of opening the circuit.

10. A method of providing a current interrupter having at least a conductor adapted to be physically altered to thereby open an associated circuit when a threshold current from the circuit passes through the conductor, the method comprising the steps of :

selecting a conductor material, the material having a flow temperature above which the conductor flows;

selecting a conductor cross-section area; and

determining said threshold current,

wherein the threshold current is sufficient to raise a conductor temperature to at least the flow temperature at a location corresponding to the cross-section area, and wherein the threshold current induces sufficient pressure in the conductor to cause a sufficient amount of the conductor material to cause an open circuit.

11. The method of claim 10 further comprising the step of selecting said induced pressure to at least overcome a pressure loss associated with the conductor flowing.

12. A method of providing a current interrupter comprising the steps of:

a) selecting an interrupter configuration having a conductor;

b) selecting a material for the conductor, a cross-sectional area for the conductor and a desired threshold current at which current interruption is desired;

c) determining a temperature above which the conductor is in a flowable state;

d) determining a magnetic pressure associated with the threshold current passing through the conductor;

e) determining a pressure required to cause the conductor to flow in the interrupter configuration when the conductor is in the flowable state;

f) comparing the magnetic pressure with the pressure required to determine if the magnetic pressure exceeds the pressure required; and then

g) providing an interrupter according to the selections made in steps a) and b),

wherein in step f) if the magnetic pressure does not exceed the pressure required then at least one of steps a) and b) and at least one of steps c), d) and e) and at least step f) are iterated until a condition that the magnetic pressure exceeds the pressure required is met, and wherein the condition is met before step g) is performed.

13. A method of interrupting a current in a circuit when a threshold current passes through a conductor of the circuit, the method comprising the steps of :

providing a conductor made of a conductor material;

providing a current through the conductor, wherein the current is sufficient to raise the conductor temperature to a temperature at which the conductor material flows, and wherein the current is sufficient to induce a pressure large enough to cause the conductor to flow and thereby interrupt the circuit.

14. A method of interrupting a current in a circuit when a threshold current passes through a conductor of the circuit, the method comprising the steps of :

providing a threshold current through the conductor;

providing a flowable state to the conductor; and

providing sufficient magnetic pressure in the conductor to cause the conductor flow accordingly and thereby interrupt the circuit, wherein the magnetic pressure is induced by current passing through the conductor.

15. The current interrupter of claim 14 wherein the magnetic pressure exceeds 0.1 psi.

16. The current interrupter of claim 15 wherein the magnetic pressure exceeds 0.5 psi.

17. The current interrupter of claim 16 wherein the magnetic pressure exceeds 1 psi.

18. The method of claim 14, wherein the step of providing the threshold current causes an associated temperature rise in the conductor, and wherein the temperature rise causes the step of providing the flowable state to the conductor.

19. The method of claim 14 wherein material from the flowing conductor is captured in a reservoir.

20. The method of claim 14, wherein the conductor flows substantially independent of a gravitational effect on the flowable conductor.

21. A method of providing a current interrupter for a circuit, the method comprising the steps of :

determining a desired threshold current;

selecting a conductor material having a flow temperature above which the conductor will flow;

selecting a conductor cross-sectional size;

determining a magnetic pressure associated with the threshold current, the conductor material and the conductor cross-sectional size;

determining a threshold conductor temperature resulting from the threshold current passing through the conductor material;

ensuring the conductor threshold temperature exceeds the conductor flow temperature; and

ensuring that the magnetic pressure is sufficient when the threshold current passes through the conductor to thereby force the conductor material to flow to interrupt the circuit.